

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) A laser-clad processing apparatus for carrying out laser-clad processing onto a valve-seat portion of a cylinder head, the laser-clad processing apparatus being characterized in that it comprises comprising:

a cylinder-head holding means for device holding the cylinder head in an inclining manner inclined orientation so that the a central axial line of said valve seat portion becomes the defines a generally vertical direction line;

a laser-processing head for irradiating a laser beam onto a process part of said valve seat portion, and at the same time while discharging a powdery material to the process part; and

rotary means which rotates a rotator rotating around the central axial line of said valve seat portion in such a state that said laser-processing head is inclined with respect to said the vertical line direction; and powdery material supply means for supplying the powdery material to said laser processing head, wherein said laser-processing head includes a coaxial nozzle comprising a powdery material supply, a swirling chamber, and a rectifier, configured to provide the powdery material in a direction substantially parallel to the central axial line in an equal amount across the process part of the valve seat portion.

2. (Currently Amended) The laser-clad processing apparatus set forth in claim 1, wherein said cylinder-head holding means is equipped with device comprises:

an inclination means for device inclining the cylinder head between two positions, a first position at which the wherein a central axial line of an inlet valve seat becomes is substantially parallel to the a vertical line and a second position at which the wherein a central axial line of an outlet valve seat becomes is substantially parallel to the vertical line; and

a horizontal-movement means for device moving the cylinder head in the X-axis direction and in the Y-axis direction, which crosses with the X-axis direction perpendicularly, on a horizontal plane.

3. (Currently Amended) The laser-clad processing apparatus set forth in claim 1, wherein the laser-processing head comprises:

a laser-beam generation means for generator generating said a laser beam; and

a coaxial nozzle through which the laser beam passes and at the same time which discharges said powdery material

wherein the laser beam passes through the coaxial nozzle.

4. (Currently Amended) The laser-clad processing apparatus set forth in claim 3, wherein said laser-beam generation means is such that generator comprises

a plurality of laser diode arrays are disposed, and shapes said laser beam by controlling the laser diode arrays depending on the a width direction of said valve-seat portion.

5. (Currently Amended) The laser-clad processing apparatus set forth in claim 1, wherein said powdery-material supply means, while letting said powdery material flow to a predetermined flow out opening, lets flow it out through the flow out opening by means of includes pressurized carrier-gas pressure, thereby to compressively supplying it supply the powdery material to said laser-processing head.

6. (Currently Amended) A laser-clad processing method for carrying out laser-clad processing onto a valve-seat portion of a cylinder head, the laser-clad processing method being characterized in that it comprises comprising:

holding the cylinder head in an inclining manner inclined orientation so that the a central axial line of said the valve seat portion becomes the defines a generally vertical direction line;

supplying a powdery material along said into a swirling chamber, and rectifying a swirling flow of the powdery material to flow in a direction substantially parallel to the central axial line to be provided in an equal amount across the valve-seat portion while holding a laser-processing head in an inclined manner orientation with respect to the vertical direction and rotating it the laser-processing head around the central axial line of said the valve seat portion; and at the same time irradiating a laser beam to carry out the laser-clad processing.

7. (Currently Amended) The laser-clad processing method set forth in claim 6, wherein

~~the shape of said laser beam is~~ has a rectangular shape.

8. (Currently Amended) The laser-clad processing method set forth in claim 6, wherein ~~said laser-processing head is rotated normally and is rotated reversely~~ rotates in a first direction, and rotates in a reverse second direction along the valve-seat portion.

9. (Currently Amended) The laser-clad processing method set forth in claim 6, wherein ~~said the rectified flow of the~~ powdery material ~~is discharged so as to deposit concentratedly~~ results in a concentrated deposit on the valve seat portion within a circle whose diameter is adapted to a side of ~~said rectangular shaped~~ the laser beam, the a side crossing with perpendicular to the processing development direction perpendicularly.

10. (Currently Amended) The laser-clad processing method set forth in claim 6, wherein the powder powdery material is melted by irradiating said the laser beam behind the a deposition center of said the powdery material by a predetermined distance with respect to the development direction of laser processing.

11. (Currently Amended) The laser-clad processing method set forth in claim 6, wherein, when stopping the compressive supply of said the powdery material,

the flow of said powder material is stopped, and ~~said a carrier gas pressure by means of carrier gas~~ is lowered toward a predetermined value while taking a predetermined time since the time at the flow stoppage or immediately before the flow stoppage.

12. (Currently Amended) The laser-clad processing method set forth in claim 6, wherein: before ~~compressively~~ supplying ~~said the~~ powdery material, ~~the a~~ carrier gas flow volume of ~~said carrier gas~~ is increased; immediately before starting the flow of said the powdery material, ~~it the flow volume~~ is decreased to a steady flow volume; and immediately before ~~the a~~ flow stoppage, the carrier gas is opened to air.